Saskatchewan
Agriculture

Annual Report 1986-87

Saskatchewan Agriculture

The Saskatchewan Agricultural Research Fund

88-03481/

Saskatchewan Agricultural Research Fund

To His Honour,
The Honourable Frederick W. Johnson
Lieutenant Governor of the Province
of Saskatchewan

Sir:

I have the honour to submit the Seventh Annual Report of the Saskatchewan Agricultural Research Fund for the period April 1, 1986 to March 31, 1987.

I have the honour to be Sir,

Your obedient servant
Grant Devine
Premier and Minister of Agriculture

The Saskatchewan Agricultural Research Fund

Honourable Grant Devine
Premier and Minister of Agriculture

Dear Sir:

It is my pleasure to present the Seventh Annual Report of the Saskatchewan Agricultural Research Fund for the period April 1, 1986 to March 31, 1987.

Respectfully submitted,

J. L. Drew
Deputy Minister of Agriculture

Dear Sir:

I am pleased to present the Seventh Annual Report of the Saskatchewan Agricultural Research Fund for the period April 1, 1986 to March 31, 1987.

Respectfully submitted,

S. Ann Barnsley
Chairman of the Saskatchewan
Agricultural Research Fund

Introduction

The Saskatchewan Agricultural Research Fund was established by the June 15, 1979 proclamation of the Agricultural Research Funding Act. The Fund consists of such money as may be appropriated annually by the Legislature, the annual earned interest, plus other money which may be transferred into the Fund by the Lieutenant Governor-in-Council. A portion of the funds are made available annually to individuals, corporations, co-operatives, associations or other organizations for the purpose of agricultural research in the Province. Applications are invited annually from interested parties. Initial appropriation for 1979-80 fiscal year was $3.25 million.

The Fund is administered by a producer-represented Board which has the authority to make grants, loans or guarantees or enter into agreements or contracts respecting assistance provided. The Board as appointed by the Lieutenant Governor-in-Council, consists of seven persons, including five practising agricultural producers and two agricultural research professionals. The Chairman and Vice-Chairman of the Board are designated by the Lieutenant Governor-in-Council. The Deputy Minister of the Saskatchewan Department of Agriculture serves as an advisor to the Board. The Board is responsible to the Minister of Agriculture.

Activities 1986-87

In 1986, the Board met to review 66 applications for funding. Eleven project renewal applications were approved for a total of $164,200. Fourteen new projects were awarded funding of $201,300. Total fund support for projects approved during the year was $365,500.

A listing of the projects approved during the year is presented in a section of this report with the project title, objective, project manager and institution. Additional information on all projects, including technical reports, is available from the Board Secretary or the individual grantees.

The financial statements of the Fund have been audited by the Provincial Auditor. These statements are presented in the final section of this report.

The Board appreciates the interest shown in the Saskatchewan Agricultural Research Fund and would like to thank all who submitted proposals in 1986.

Saskatchewan Agricultural Research Fund Board 1986-87

CHAIRMAN:	**Mrs. Ann Barnsley** Box 625 BALCARRES, S0G 0C0
VICE-CHAIRMAN:	**Dr. J. Milton Bell** Department of Animal and Poultry Science University of Saskatchewan SASKATOON, S7N 0W0
MEMBER:	**Dr. Art Guitard** 3727 Balfour Street SASKATOON, S7H 3Z5
MEMBER:	**Mr. Henry Martynse** Box 1208 WYNYARD, S0A 4T0
MEMBER:	**Mr. Roy Levee** Box 7 RADVILLE, S0C 2G0
MEMBER:	**Mr. Clarence Schmidt** R.R. 2 CRAVEN, S0G 0W0
MEMBER:	**Mr. Richard Weetman** STEWART VALLEY, S0N 2P0
ADVISOR:	**Mr. Jack Drew** Deputy Minister Saskatchewan Agriculture 3085 Albert Street REGINA, S4S 0B1
ACTING SECRETARY:	**Mr. Doug Winsor** Saskatchewan Agriculture 3085 Albert Street REGINA, S4S 0B1

Table I
Saskatchewan Agricultural Reserach Fund
Funding of Renewal Projects
1986-87

Project No.	Grantee	Title and Objective of Project	Amount
S-86-01-0013	Dr. D. H. McCartney Agriculture Canada, Melfort	To evaluate practical Post-Partum Nutrition and Drug Management in Controlled Breeding of Beef Cows - to evaluate effects on estrus of post-partum nutrition, weaning calves and the use of Syncro-Mate-B and Estrumate	$ 4,000
S-86-05-0014	Dr. J. Waddington Agriculture Canada, Swift Current	Renovation of Pastures by Direct Seeding - to find an effective method of introducing forage legumes into pastures and to compare seed drills for direct seeding without breaking	$15,000
S-86-05-0015	Dr. C. H. Craig	The Lesser Clover Leaf Weevil, **Hypera nigrirostris**: Ecology and Control in Red Clover Seed Crops	$14,700
S-86-05-0016	Dr. T. N. McCaig Agriculture Canada, Swift Current	Development of Techniques and Strategies to Selection for Grain Yield, Protein Content and Kernel Hardness in Wheat Using Near-Infrared Spectroscopy - to develop and evaluate calibration constants for measuring protein content and kernel hardness in wheat; to formulate a selection strategy for these traits and implement evaluation and selection strategies for developing improved cultivars	$18,000
S-86-01-0036	Dr. B. Laarveld Animal and Poultry Science University of Saskatchewan	Improvement of Production Efficiency of Livestock by Vaccination Against Somatostatin - to improve the method of vaccination against somatostatin and to determine the optimal management and nutritional conditions required to maximize the benefit of the vaccination	$25,000
S-86-10-0037	Dr. A. R. Mermut Department of Soil Science University of Saskatchewan	Mineralogy, Morphology and Dynamics of Salts in Agricultural Soils of Saskatchewan - to identify mineral species in salt crusts, saline layers and geological columns; to establish major soluble associations in Saskatchewan soils; to investigate the origin of salts and their significance in relation to salt loading groundwater and/or aquifers and to provide basic information for saline soil management	$16,000
S-86-10-0038	Dr. R. B. McKercher Department of Soil Science University of Saskatchewan	The Determination of Trifluralin Levels in Soil by Instrumental Analysis and Bioassay	$19,000

S-86-05-0039	Dr. S. Jana Department of Crop Science and Plant Ecology University of Saskatchewan	Screening Durum Wheat and Wild Emmer Wheat Germplasm for Drought Tolerance - to evaluate germplasm lines of durum wheat and its immediate progenitor species collected from West Asia for adaption to Saskatchewan conditions and tolerance of field level moisture stress	$16,000
S-86-05-0040	Dr. G. R. Hughes Department of Crop Science and Plant Ecology University of Saskatchewan	Evaluation of Sources of Resistance to **Septoria tritici** Blotch of Wheat - to evaluate sources of resistance to Speckled Leaf Blotch of Wheat; to determine inheritance of resistance; to determine the allelic relationships among the major genes identified for resistance; to examine the extent to which physiologic specialization exists in the Saskatchewan population of **Septoria tritici** and to incorporate resistance into adapted spring and winter wheats	$12,500
S-86-05-0041	Dr. C. Stushnoff Dr. Ken Friesen Department of Horticulture University of Saskatchewan	Rooting of **Amelanchier alnifolia** Shoots Produced **In vitro** and the Subsequent Establishment of Rooted Shoots Under Greenhouse or Field Conditions - to facilitate the mass propagation of Saskatoon species by improving the proportions and consistency of rooting in micropropogated shoots to develop techniques to establish rooted shoots under greenhouse or field conditions	$ 9,000
S-86-05-0067	Dr. L. V. Gusta Crop Development Centre University of Saskatchewan	The Effect of Growth Regulators on Winter Survival, Lodging and Yield of Norstar Winter Wheat and Muskateer Fall Rye - to determine the effects of growth regulators on lodging resistance, yield and winter survival	$15,000
Total for Renewal Projects		$164,200	

Table I
Saskatchewan Agricultural Research Fund
Funding of New Projects
1986-87

Project No.	Grantee	Title and Objective of Project	Amount
S-86-01-0003	Dr. E. C. Crichlow Veterinary Physiological Sciences, WCVM	Use of Alpha-2 Adrenorecptor Antagonists to Relieve Ruminal Status in Ruminal Lactic Acidosis (Grain Overload) - to determine if administering drugs blocking Alpha-2 adrenorecptors results in re-establishment of forestomach mobility when ruminal stress has occurred in ruminants experimenting lactic acidosis	$18,000

S-86-05-0006	Dr. R. A. A. Morrall Department of Biology University of Saskatchewan	Etiology of Root Rot Diseases in Lentil and Pea Crops - to determine the major causal agents of root rots in lentils and field pea in Saskatchewan and western Canada and to determine if the severity of root rot is correlated with agronomic practices with a view to recommending control procedures	$12,000
S-86-01-0008	Dr. J. M. Bell Animal and Poultry Science University of Saskatchewan	An Evaluation of Wheat in Feeding Market Pigs - to compare 3M, hard red spring and winter wheat cultivars with barley in growing and finishing rations for pigs	$20,000
S-86-04-0017 S-86-04-0018	Dr. R. P. Zentner Agricultural Economics University of Saskatchewan	Economics of Reduced Tillage Systems in Saskatchewan/The On-Farm Economic Costs of Soil Erosion - to determine the short and long-run economic consequences of soil erosion, the implications of adopting alternative minimum and zero tillage systems and the economic costs of restoring soil productivity	$20,000
S-86-02-0026	Dr. S. D. Bhole Faculty of Engineering University of Regina	Materials Data-Base for Tillage Tools - to determine and evaluate a range of materials for tillage tools and create a data-base for material selection for specific soil types	$ 8,300
S-86-01-0033	Dr. S. van den Hurk Veterinary Infectious Disease Organization	Development of a Subunit Vaccine for Control of Bovine Herpesvirus-1 (Infectious Bovine Rhinotrachetis-IBR) Induced Respiratory Disease (Shipping Fever) - To test Immunogenicity and protective capacity of purified bovine herpesvirus-1 (Bhv-1) glycoproteins (subunit vaccines) to prevent respiratory disease in cattle and to develop a large-scale glycoprotein purification method based on immunoabsorbent chromatography	$15,000
S-86-01-0047	Dr. D. A. Christensen Animal and Poultry Science University of Saskatchewan	Dietary Sulfate-Copper Induced Thiamin Deficiency in Livestock - to determine if high copper (Cu) in the presence or absence of excess sulfur (S) depletes animals of thiamin (B_1) and if supplemental B_1 can prevent this - to investigate the sites and mechanisms of Cu-S-B_1 interactions - to study effects of high Cu and/or S on availability of B_1 and production parameters in sheep and to determine the maximum level of Cu supplementation in the presence of high dietary S required to alleviate Cu deficiency without interfering with B_1 utilization	$20,000

S-86-01-0048	Dr. G. I Christison Animal and Poultry Science University of Saskatchewan	Effects of Season and Weather on Growth Rate of Bulls in the Saskatchewan Bull Test Station - to determine the interrelationships of season and climate on growth rate and feed intake of bulls reared under Saskatchewan conditions	$ 8,000
S-86-01-0051	Dr. Roger Cohen Animal and Poultry Science University of Saskatchewan	Dietary Protein and Energy Requirements of Feedlot Cattle Differing in Mature Body Size - to evaluate performance and carcass characteristics of large and medium framed calves fed diets varying in energy and protein content - to monitor blood somatomedin levels for correlation with frame, size, growth rate and/or plane of nutrition	$20,000
S-86-07-0053	Dr. E. S. Humbert Applied Microbiology and Food Science University of Saskatchewan	Importance of Natural Milk Bacterial Inhibitors on Raw Milk Quality - to determine effectiveness of natural milk inhibitors on extending keeping quality of milk; to analyse raw milk samples for number and type of microorganisms and measure effectiveness of inhibitor activity on spoilage microorganisms	$12,500
S-86-05-0054	Dr. G. G. Khachatourians Applied Microbiology and Food Science University of Saskatchewan	Biodegradation of Trichothecene Fungal Toxins - to search for bacteria in Saskatchewan capable of degrading mycotoxins in vitro; to deterine their effects in soil, feed and grain and to study the effects of "biodegraded commodities" of animal and poultry feeding	$17,000
S-86-07-055	Dr. A. R. McCurdy Applied Microbiology and Food Science University of Saskatchewan	Stability of GLA and EPA Under Model and Commercial Storage Conditions - to elucidate effects of varying process parameters on oxidation rate and products of eicosapentanoic and gamma linolenic acids	$ 5,000
S-86-05-0062	Dr. Alfred E. Slinkard Crop Development Centre University of Saskatchewan	Development of a Red Cotyledon Lentil for Saskatchewan - to develop a red cotyledon lentil similar in yield and performance to the yellow cotyledon variety Eston	$11,000
S-86-10-0063	Dr. D. W. Anderson Department of Soil Science University of Saskatchewan	The Effect of Long-Term Rotations on the Active Fraction of Organic Matter and Soil Tilth - to evaluate effects of cropping systems on nutrient-supplying capabilities of soil organic matter and the aggregation or tilth of soils	$14,500
Total for New Projects		$201,300	
Total for All Projects Approved in 1986-87		$365,500	

Saskatchewan Agricultural Research fund Board

Financial Statements

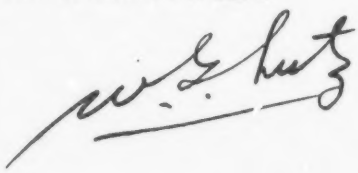
For the year ended March 31, 1987
Office of the Provincial auditor
Regina, Saskatchewan

Auditor's Report

To the Members of the Legislative Assembly
Province of Saskatchewan

I have examined the balance sheet of The Saskatchewan Agricultural Research Fund Board as at March 31, 1987, and the statement of revenue, expenditure and fund balance for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Board as at March 31, 1987, and the results of its operations for the year then ended in accordance with the accounting principles disclosed in note 1 to the financial statements applied on a basis consistent with that of the preceding year.



W.G. Lutz, F.C.A.,
Provincial Auditor.

Regina, Saskatchewan
October 30, 1987.

Statement 1

Saskatchewan Agricultural Research Fund Board
Balance Sheet
March 31, 1987
(with comparative figures at March 31, 1986)

	1987	1986
Assets		
Cash in bank	$ 136,025	$ 9,492
Investments - at cost (Schedule 1) (Market Value: 1987 - $3,611.986; 1986 - $3,570,485)	3,526,323	3,570,485
Accrued interest receivable	83,765	126,297
	$ 3,746,113	$ 3,706,274
Liabilities and Fund Balance		
Liabilities:		
Grants committed	$ 492,835	$ 442,852
Surplus:		
Capital funds (Note 4)	3,253,278	3,263,422
	$ 3,746,113	$ 3,706,274

(See accompanying notes to the financial statements.)

Statement 2

Saskatchewan Agricultural Research Fund Board
Statement of Revenue, Expenditure and Fund Balance
For the Year Ended March 31, 1987

	1987	1986
Revenue:		
Investment interest	$ 353,763	$ 376,609
Expenditure:		
Grants (Note 5)	361,069	363,763
Board expenses	2,838	2,857
Total expenditure	363,907	366,620
Excess of revenue over expenditure (expenditure over revenue)	(10,144)	9,989
Fund balance, beginning of year	3,263,422	3,253,433
Fund balance, end of year	$ 3,253,278	$ 3,263,422

(See accompanying notes to the financial statements.)

Saskatchewan Agricultural Research Fund Board
Notes to Financial Statements
March 31, 1987

1. Accounting Policies

These financial statements are prepared on an accrual basis with the following significant policy:

Grant Commitment

Grant commitments are recorded as an expenditure of the Board at the point in time the Saskatchewan Agricultural Research Fund Board approves the grant. Grants committed but not paid at the year end are reflected as a liability on the balance sheet.

2. Related Party Transactions

Costs borne by Other Agencies

In accordance with established government practice, the Saskatchewan Agricultural Research Fund Board has not been charged with any occupancy costs and no provision for such costs is reflected in these financial statements. These costs together with certain general administrative and employee benefit costs are absorbed by various departmental appropriations.

3. Incorporation

The Saskatchewan Agricultural Research Fund Board was established under The Agricultural Research Funding Act, Chapter A-14.1, 1978 Revised Statutes of Saskatchewan. This Act came into force by proclamation of the Lieutenant Governor on June 15, 1979. The Saskatchewan Agricultural Research Fund Board pays grants from the fund to individuals, corporations, co-operatives, partnerships, associations or other organizations for the purpose of agricultural research in the province.

4. Capital Funds

This Fund was initially financed by an appropriation of $3.25 million in the year ended March 31, 1980 with the intention that the Saskatchewan Agricultural Research Fund Board was that only the investment income on the $3.25 million would be available for expenditures. Effective February 2, 1984, the Saskatchewan Agricultural Research Board passed a motion to reduce the capital fund by $20,000 to $3.23 million. Therefore, at the comparative fiscal year-ends the capital funds would consist of:

	1987	1986
Funds available for grants	$ 23,278	$ 33,421
Capital funds, not available for grants	3,230,000	3,230,000
	$ 3,253,278	$ 3,263,421

5. Grants Committed

Grants committed during the year have been reduced by $4,431 (1986 - $14,487) representing prior year projects that have been terminated.

6. Subsequent Events

On November 6, 1987, Bill 58 was passed which stated that effective on a date to be proclaimed by the Lieutenant Governor, The Agricultural Research Fund Act will be repealed. At this time, the powers of the Agricultural Research Fund Board will be transferred to the minister responsible for the administration of that Act for the purpose of fulfilling and inforcing existing loans, guarantees, agreements or contracts made pursuant to that Act.

Schedule 1

Saskatchewan Agricultural Research Fund Board
Summary of Investments
At at March 31, 1987

Description	Rate	Maturity Date	Amount
Trans Canada Pipe	8.40	April 1, 1987	$ 73,115
Caisses Central Promissory Note	8.70	April 21, 1987	38,530
Lloyds Bank Acceptance	7.47	April 27, 1987	147,584
Southam Inc. Promissory Note	8.60	June 4, 1987	67,289
Alberta Gas Promissory Note	8.55	July 7, 1987	129,480
Royal Trust Promissory Note	8.38	September 8, 1987	99,452
GMAC Promissory Note	9.51	November 13, 1987	33,295
Province of British Columbia Promissory Note	8.67	December 1, 1987	148,370
Government of Canada Treasury Bill	7.30	March 4, 1988	767,790
Canadian Imperial Bank of Commerce Mortgage Corporation Certificate	11.50	April 18, 1989	500,000
Royal Trust	11.15	August 21, 1990	500,644
Royal Trust	10.00	June 9, 1991	500,919
Interprovincial Pipe	10.875	July 15, 1996	519,855
Total Investments			$ 3,526,323